

3.2 Medical Requirements Overview**TABLE 3.2: MEDICAL REQUIREMENTS OVERVIEW**

MEDB# and Title:	MEDB 1.2 Crew Medical Officer Health Status Evaluations	
Sponsor:	Medical Operations	
IPT:	N/A	
Category:	Medical Requirements	
References:	SSP 50260 ISS Medical Operations Requirements Document (MORD) SSP 50667 Medical Evaluations Document (MED) Volume B	
Purpose/Objectives:	To assess the medical status of the crewmember in-flight and report the findings to the Crew Surgeon.	
Measurement Parameters:	Periodic Health Status Evaluation (HSE) with blood labs, as needed: A. Vitals B. Medical History C. Physical Exam D. Labs- 1. Blood Chemistry 2. Urinalysis 3. Pulmonary	Periodic Health Status Evaluation (HSE) without blood labs: A. Vitals B. Medical History C. Physical Exam D. Labs- 1. Urinalysis 2. Pulmonary
Deliverables:	The crewmember's health status may be documented during a Mission Management Team (MMT) meeting in the form of a broad report.	
Flight Duration:	≥ 30 days	
Number of Flights:	All long-duration flights	
Number and Type of Crew Members Required:	All Crewmembers	
Other Flight Characteristics:	N/A	

3.3 Preflight Training

TABLE 3.3: PREFLIGHT TRAINING

Preflight Training Activity	Description:	Two Crew Medical Officers (CMOs) will be trained to perform medical evaluations and diagnosis at L-4 months.			
	Schedule:	Duration:	Schedule:	Flexibility:	Personnel Required:
		1. ISS Medical Diagnostics 1: 2 hours 2. ISS Medical Diagnostics 2: 2 hours	1. L-4 months 2. L-4 months	1. +/- 2 months 2. +/- 2 months	1. Trainers/ CMOs 2. Trainers / CMOs
Ground Support Requirements	Hardware/Software	Preflight Hardware:	Preflight Software:		Test Location:
		1. Medical Equipment Computer (MEC) 2. Advanced Life Support Pack (ALSP) 3. Ambulatory Medical Pack (AMP) 4. Portable Clinical Blood Analyzer (PCBA) ----- 5. M-1100 Centrifuge 6. Urilux and accessories 7. Reflotron and accessories	1. MEC software (In-Flight Examination Program, IFEP) ----- Russian hardware and medical training will be scheduled by and trained by the GCTC personnel in Star City.		1. U.S 2. U.S 3. U.S. 4. U.S ----- 5. Russia 6. Russia 7. Russia
Training Facilities	Minimum Room Dimensions:		Number of Electrical Outlets:	Temperature Requirements:	Special Lighting:
	Standard room, 8' x 10'		4 (U.S. 110V, Russia 220V)	Normal, 20° – 25°C.	Normal lighting
	Hot or Cold Running Water:		Privacy Requirements:	Other:	
	Running water needed for hand washing.		Private room required	N/A	
Constraints/Special Requirements:		N/A			
Launch Delay Requirements:		Refresher training to be scheduled @ Crew Surgeon or crew request			
Notes:		Training Procedures: 1. SODF: ISS Med (Medical Checklist) 2. RODF: Service Module Medical Operations Book 2			

3.4 Preflight Activities – No Preflight Activities

3.5 In-Flight Activities

TABLE 3.5.1: IN-FLIGHT ACTIVITIES

In-Flight Activity	Description:	Crew and CMO will perform complete Periodic Health Status Evaluation (HSE) tests according to the Medical Day schedules. These tests will be conducted periodically in flight, two weeks prior to landing (prelanding medical evaluation), and at the Flight Surgeon’s discretion.				
	Schedule:	Duration:	Schedule:	Flexibility:	Blood Volume:	Personnel Required:
	HSE without blood labs CMO: 2.0 hours/ crewmember Crew: 1.0 hour HSE with blood labs CMO: 2 hrs 40 min/ crewmember Crew: 1hr 40 min	L+14/21 days L+90 days R-21/14 days As Clinically Indicated	+/- 3 days Health Status Evaluation will suffice for prelanding med eval if performed within 2 weeks of landing.	65µL	CMO & Crew	
Procedures:		In-flight procedures can be found within the SODF: MED OPS, ISS MED (Med checklist) and in the SODF: Service Module Medical Operations Book 2. In addition, procedures can also be found within the ISS Medical Console Handbook.				
Constraints / Special Requirements:		Portable Clinical Blood Analyzer (PCBA) Cartridge kits require refrigeration of +4° - + 8°C. Strenuous activity that leads to sore muscles should not be performed 24 hours prior to PHS.				
Photo / TV Requirements:		N/A				
Cold Stowage Requirements:		PCBA cartridges require refrigeration at 4-8°C				
Mission Extension Requirements:		N/A				
Data Delivery		Data/Report to Designated Recipients (Nominal/Contingency):				
		Data reports will be analyzed and returned to the Flight Surgeon within 24-48 hours. Note: 1. Data is crewmember controlled and shared with the Flight Surgeon during the in-flight Private Medical Conferences (PMC). 2. Per ISS Medical Operations Data and Communication Concepts and Requirements (JSC 28289), the in-flight PHS data will be downlinked within the week of test completion from the Medical Equipment Computer (MEC). 3. Data may be downlinked to the ground more frequently, at the Flight Surgeon’s request. 4. Distribution of this data will be at the discretion of the Flight Surgeon to the appropriate JSC Discipline specialists.				

In-Flight Activities, (cont.)

MEDB 1.2 Crew Medical Officer Health Status Evaluations

MEDB 1.2
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TABLE 3.5.2: IN-FLIGHT HARDWARE

Hardware/Software Name	P/N
Medical Equipment Computer (MEC) and kit	SEG46116031-XXX
In-flight Examination Program (IFEP) software on MEC	WLSD210052-XXX
Advanced Life Support Pack (ALSP)	SKD42101830-XXX
Ambulatory Medical Pack (AMP)	SKD42101500-XXX
PCBA Cartridge Kit	SEM46111311-XXX

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TABLE 3.5.2: IN-FLIGHT HARDWARE, Cont.

Hardware/Software Name	P/N
M-1100 Centrifuge Kit	Xt2.840.602
Urilux Instrument	Xt2.850.605
Urilux Kit	Xt4.160.662
Reflotron Analyzer	Xt2.850.603
Reflotron Kit (and Measuring Strips)	Xt4.160.657, (Xt4.160.655)

3.6 Postflight Activities – No Postflight Activities

3.7 Summary Schedule**TABLE 3.7: SUMMARY SCHEDULE**

ACTIVITY	DURATION	SCHEDULE	FLEXIBILITY	BLOOD VOLUME	PERSONNEL REQUIRED	CONSTRAINTS
Preflight Training						
ISS Medical Diagnostics 1	2 hours	L-4 months	+/- 2 months	65 µL	Trainers/CMOs	N/A
ISS Medical Diagnostics 2	2 hours	L-4 months	+/- 2 months	N/A	Trainers/CMOs	N/A
Preflight: N/A						
In-Flight						
HSE without blood labs	CMO 2.0 hours/ crewmember Crew: 1.0 hour	L+14/21 days L+90 days R-21/14 days	+/- 3 days	N/A	CMO & Crew	Strenuous activity that leads to sore muscles should not be performed 24 hours prior to PHS.
HSE with blood labs	CMO: 2 hrs 40 min/ crewmember Crew: 1hr 40 min/ crewmember	As Clinically Indicated	+/- 3 days 30 day PHS will suffice for prelanding med eval if performed within 2 weeks of landing.	65 µL	CMO & Crew	PCBA cartridges require refrigeration of 4° - 8°C. Strenuous activity that leads to sore muscles should not be performed 24 hours prior to PHS.
Postflight – N/A						
Postflight Debrief						
PHS	Included as part of the overall MedOps debrief					